REMARKS

Claims 1-22 are pending in the application. Favorable reconsideration in light of the remarks which follow is respectfully requested.

The Obviousness Rejection

Claims 1-22 have been rejected under 35 U.S.C. § 103(a) over Mitwalsky et al (U.S. Patent 5,789,302) in view of Doerr (U.S. Patent 6,219,471). Mitwalsky et al generally relates to using crack stops in wafers when dicing to form individual semiconductor integrated circuit chips. Mitwalsky et al forms discontinuities in the thickness of a dielectric layer near the edges of the individual integrated circuits, such as along the perimeter of the subsequently made integrated circuit chip. Doerr relates to optical devices that contain an array of optical waveguides that have straight and curved portions. Figures 3 and 4 of Doerr show "S" shaped optical waveguides, having straight and curved portions, extending between pairs of points.

The Examiner asserts that Doerr teaches cutting optical device substrates in a curvilinear manner, since the Examiner is under the impression that such devices have low polarization sensitivity. The Examiner then contends that it would have been obvious to modify Mitwalsky et al to have optical integrated circuits cut in a curvilinear manner, and it would have bee desirable to have efficient optical integrated circuit devices. The Examiner goes on to state that while Mitwalsky et al and Doerr do not individually disclose all of the claimed features, combined together all of the claimed features are disclosed. Applicants respectfully disagree.

The Law

To establish a *prima facie* case of obviousness, three basic criteria must be shown. First, there must be some suggestion or motivation, either in the cited art or in the knowledge generally available to one of ordinary skill in the art, to modify the cited art or to combine the cited art. Second, there must be a reasonable expectation of success. Finally, the cited art must teach or suggest all the claim features. *See* MPEP

706.02(j).

Doerr Fails to Teach or Suggest Curvilinear Cutting

Even when combined, Mitwalsky et al and Doerr do not disclose all of the claimed features. This because neither Mitwalsky et al nor Doerr teach or suggest curvilinear cutting. Specifically referring to Doerr, Doerr teaches the presence of curvilinear waveguides on optical devices. This is not new or unique, as most optical devices that contain waveguides actually contain curvilinear waveguides. But these optical devices containing curvilinear waveguides are typically rectangular in shape. Doerr is COMPLETELY silent as to the shape of its optical devices. The Examiner is specifically requested to provide the column and line number in Doerr where curcvilinear cutting mentioned, and where the shape of an optical device is mentioned. Figs. 3 and 4 of Doerr show curvilinear waveguides, NOT optical devices with curvilinear edges.

Low Polarization Sensitivity Has Little if Any Connection To The Shape of a Device

The Examiner contends that the desire for low polarization sensitivity provides motivation to one skilled in the art to cut an optical device substrate in a curvilinear manner. Applicants disagree. Polarization sensitivity is NOT governed by the shape of a substrate on which waveguides are positioned. Polarization sensitivity is determined by dimensions of the waveguides themselves, as polarization sensitivity concerns differences in the waveguide's transmission intensity for TE and TM polarizations. Consequently, the desire for low polarization sensitivity WOULD NOT have motivated one skilled in the art to make curvilinear shaped optical devices. In fact, the desire for low polarization sensitivity WOULD NOT have motivated one skilled in the art to make an optical device having ANY particular shape. The desire for low polarization sensitivity as taught by Doerr would have motivated one skilled in the art to make sure the waveguides on a given optical device have equal lengths in the straight and curved portions. This has NOTHING to do with the shape of the optical device.

The Cited Art Fails to Provide Any Reasonable Expectation of Success

Mitwalsky et al mentions that discontinuities in the thickness of a dielectric layer near the edges of the individual integrated circuits to mitigate the spread of cracks when forming straight cuts in a wafer. Mitwalsky et al does not teach or suggest that the discontinuities can prevent cracks when cutting in a curvilinear manner. And Mitwalsky et al does not teach or suggest dicing optical integrated circuits. Doerr simply fails to discuss dicing.

Straight cutting and curvilinear cutting are very different activities. Curvilinear cutting is much more complicated than straight cutting and is much more likely to cause cracking than straight cutting. In other words, the two activities are not equivalent. Therefore, one skilled in the art would NOT reasonably expect a crack mitigation technique for straight cutting to be effective for curvilinear cutting. One skilled in the art thus would not attempt to curvilinear cut optical integrated circuits based on Mitwalsky et al and Doerr.

The Claimed Stop Crack Dimensions

Referring to claims 3, 11, and 19, neither Mitwalsky et al nor Doerr disclose, teach or suggest the stop crack dimensions required. This is important because the stop crack dimensions required by claims 3, 11, and 19 are specifically tailored for curvilinear cutting of optical circuits. Since, as explained above, neither Mitwalsky et al nor Doerr teach or suggest curvilinear cutting of optical circuits, one skilled in the art has nothing to optimize in order to arrive at the features required by claims 3, 11, and 19. That is to say, the crack stop dimensions of Mitwalsky et al for straight cutting integrated circuit chips would not be equivalent to stop crack dimensions required by claims 3, 11, and 19 specifically tailored for curvilinear cutting of optical circuits. Claims 3, 11, and 19 are patentable for this additional reason.

In light of the foregoing, withdrawal of the rejection is respectfully requested.

Petition for Extension of Time

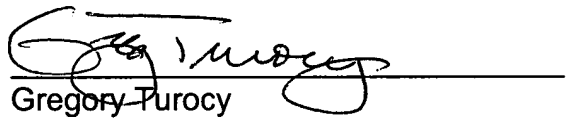
A request for a three month extension of time is hereby made (small entity status has been established). The Commissioner is authorized to charge the fees for the Three Month Petition to our Deposit Account No. 50-1063.

Should the Examiner believe that a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to our Deposit Account No. 50-1063.

Respectfully submitted,

AMIN & TUROCY, LLP



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